# TEACHER ATTENDANCE EFFECTS ON STUDENT ACHIEVEMENT: RESEARCH STUDY OF OHIO SCHOOLS

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Accountability for student learning and successful progression through each grade level has been a top priority concern for federal, state, and local educators. Studies have revealed several variables affecting student achievement, with much attentiveness on student attendance (Barrington & Hendricks, 1989, Borland & Howsen 1998, Coutts, 1996, Gottfried, M., 2009, Johnson, 2000, King, 2000, Lamdin, 1996, Ramani et al., 2007, Roby, 2004). This study focuses on teacher attendance as a variable potentially affecting student achievement. Schools in Ohio with low teacher attendance rates were compared with schools revealing high teacher attendance averages. For comparison purposes, Ohio Department of Education data was accessed, which included attendance rates of teachers and students, school performance indicators, adequate yearly progress, and individual school ratings. Statistical analysis included comparison of means, standard deviations, percentages, and t test ratios. Results disclose significant differences for teacher, student, and school performance rankings.

## Review of Literature

Schools throughout the United States attempt to pinpoint student learning problems on a yearly basis. Those charged with analyzing data look for variables affecting student achievement, directly and indirectly. Student attendance, socioeconomic status, parent involvement, curriculum, and testing climate are some of the factors noted as affecting learning (Gottfried, 2009, King, 2000, Ramai et al, 2007). The focus of this study will be teacher attendance, and its impact on student achievement.

Woods (1990) completed a study to determine the impact of teacher absences on student achievement. Two schools participated in the study, one in Wyoming and one in Indiana. Data analysis from the study revealed that teacher attendance had a significant impact on student learning. Teachers with lower absent rates had students scoring better on achievement tests, when compared to teachers with significantly absence. The research also indicated principals do not consider absent rate when evaluating teachers.

In a study by Kremer et al (2005), teacher absenteeism in India was not associated with lower pay. However, it was noted that teacher absence correlated with daily incentives to attend work, such as school inspection and better infrastructure. Glewwe et al (2004) found that teacher attendance did not increase with an incentive program, but the affects impacted student scores significantly on some tests. Test scores were less likely to increase when incentives were not provided.

Boyer (1994) studied the affects of paying teachers for unused sick leave to reduce the absenteeism, which was an obstacle to academic achievement. The Georgia school study revealed there was no significant relationship between sick-leave provisions and teacher attendance rates. The extrinsic motivator, money, made little or no difference in teachers' attendance. Other educators, including Miller et al (2008, 2006), Bruno (2002), Ehrenberg

(1991), Jacobson (1990, 1989), Duflo & Hanna (2005), Scott (1998), Pitkoff (1993), and Woods & Montagno (1997) have completed narratives involving teacher attendance/absenteeism. Complimenting the studies above, these position papers and editorials present problems, concerns and affects of teacher absenteeism.

### Study Focus and Research Questions

The objective of this study is for educators to gain insight pertaining to teacher attendance affecting student achievement. As can be seen from the review of studies and articles regarding student achievement, teacher absenteeism appears to be a variable worth further investigation. Teacher attendance will be reviewed based on the following research questions:

1. Is there a statistically significant difference in average teacher attendance rates when comparing schools with the lowest and highest attendance rates of teachers?
2. Is there a statistically significant difference in student attendance rates when comparing the lowest and highest rates, from the sample schools used in research number question one?
3. Is there a statistically significant difference in student achievement, comparing school performance index data derived from the sample schools in research question number one?
4. Is there a statistically significant difference in percent of academic standards achieved when comparing schools from the sample used in research question number one?
5. Is there a statistically significant difference in the number of schools meeting adequate yearly progress goals, when comparing schools used for analyzing research question number one?

### Methodology

For comparison of average attendance rates, mean, standard deviation, and *t* test were employed. Adequate year progress data was computed in percentages, and for comparison purposes, *t* was calculated. School ratings were not calculated, due to being reported in non-numerical levels. Those results were noted using percentage comparisons. Percent of achievement standards met was compared and calculated using *t*. The performance index (Ohio Department of Education, 2012), provided to indicate an overall numerical rating for each school in the study, was calculated for significance using *t*.

All data used for this study were taken from the Ohio Department of Education web site (ODE, 2012). The most recent information was accessed using 2010-2011 Report Cards to obtain teacher and student attendance rates, Adequate Yearly Progress, school ratings, number of standards met, Performance Index ratings, and type of school. Schools chosen for the study (n=60) were based entirely on ranking of teacher attendance. The 30 lowest ranked teacher attendance schools were compared with the 30 highest teacher ranked teacher attendance schools. All schools in the study were standard public schools (Table 1); special schools, academies, charter schools, or schools without complete data were extracted.

**Table 1. Type of Public School (n=60)**

| School Type | Elementary | Middle School | High School |
|---|---|---|---|
| 30 Lowest Ranked | 17 | 2 | 11 |
| 30 Highest Ranked | 24 | 0 | 6 |

## Findings

Research question one addresses the focus of the study: Is teacher attendance a significant variable potentially affecting student achievement? Data for this part of the study were calculated using the Ohio Department of Education School Building Report Cards (ODE, 2012). Table 2 displays the teacher attendance rate comparisons.

**Table 2. Teacher Attendance Comparison (n=60)**

| School Type | Mean | SD | *t* |
|---|---|---|---|
| 30 Lowest Ranked Schools | 87.28 | 1.46 | 4.93* |
| 30 Highest Ranked Schools | 97.83 | 0.31 | |

*Significant (p<.01)

Comparing the lowest 30 schools attendance rates of teachers with the highest 30 indicated a significant difference exists. The difference in means of the two teacher groups was approximately 10 points. The State of Ohio does not set an expected teacher attendance rate, but notes that student attendance rate must be at a minimum of 93 percent to be considered satisfactory.

Student attendance rates were the focus of research question two. The comparison of attendance rates were based on the same data procured for research question one, which were schools ranked by lowest and highest teacher attendance. Results are noted in Table 3.

**Table 3. Student Attendance Comparison (n=60)**

| School Type | Mean | SD | t |
|---|---|---|---|
| 30 Lowest Ranked Schools | 92.73 | 2.43 | 5.70* |
| 30 Highest Ranked Schools | 95.90 | 0.77 | |

*Significant (p<.01)

Again, note that student attendance rate comparisons are significant at .01, and this is based on rank order of the lowest and highest teacher attendance schools.

Student achievement in the lowest and highest ranking schools, based on teacher attendance rates, was the focus of research question three. Student achievement was identified by comparing performance index data (ODE, 2012). Performance index scores were obtained for each school in the study. Points are earned based on how well each student does on all tested subjects, graduation rate, and attendance. School buildings achieving performance index scores of 100-120 are rated excellent, or excellent with distinction. Lower scores produce ratings ranked in the following order: effective continuous improvement, academic watch, and academic emergency.

Table 4 displays the results for research question 3. The 30 lowest teacher attendance schools were compared with the 30 highest teacher attendance schools.

**Table 4. Student Achievement Comparison (n=60) School Performance Index**

| School Type | Mean | SD | t |
|---|---|---|---|
| 30 Lowest Ranked Schools | 73.80 | 12.87 | 5.63* |
| 30 Highest Ranked Schools | 103.28 | 6.76 | |

*Significant (p<.01)

Performance index scores of the schools in the study were significantly different, with schools illustrating higher teacher attendance rates averaging over 103 points, compared to a mean of 73.80 points for the lowest teacher attendance schools.

Public schools in Ohio receiving the Building Report Card are also assessed for the number of standards attained. This is reported

in percentages. Research question four examines the differences of standards met for the schools in the study. Table five reveals the findings, using mean, standard deviation, and the *t* test. Results indicate that schools differed significantly in the number of standards successfully met. Schools ranked by lowest teacher attendance met approximately 20 percent of the academic standards, as compared to the highest-ranking teacher attendance schools, which met over 91 percent of all standards. Significance was found at the .01 confidence level.

**Table 5. Academic Standards Comparison (n=60) Standards Met (Percent)**

| School Type | Mean | SD | t |
|---|---|---|---|
| 30 Lowest Ranked Schools | 20.11 | 30.10 | 5.29* |
| 30 Highest Ranked Schools | 91.33 | 18.02 | |

*Significant (p<.01)

Adequate Yearly Progress (AYP) is a federally required measure that is part of Ohio's public schools' accountability system (ODE, 2012). Schools must meet AYP goals that are established for reading and mathematics, attendance, and graduation rate. Research question five addresses AYP outcomes of the 30 lowest and 30 highest teacher attendance rate schools. Table 6 shows the results of AYP comparison.

**Table 6. AYP Comparisons (n=60)**

| School Type | Mean | SD | t |
|---|---|---|---|
| 30 Lowest Ranked Schools | 0.19 | 0.40 | 2.76* |
| 30 Highest Ranked Schools | 0.93 | 0.25 | |

*Significant (p<.01)

Twenty-eight schools housing the highest teacher attendance rates met AYP standards; only two schools met AYP standards with the lowest ranked teacher attendance. The *t* test was used to check significant differences. AYP results between the schools compared revealed significance at the .01 level of confidence.

Finally, although not measured statistically, school rating levels determined by total standards met, AYP, and the performance index proved similar in conclusive findings. Schools with highest teacher attendance rates were as follows: three excellent with distinction, 20 excellent, five effective, two continuous improvement, and none rating as academic watch or academic emergency. Schools with the lowest teacher attendance rates compared as follows: none rating excellent with distinction, one excellent, seven effective, three continuous improvement, four academic watch, and 15 rated as academic emergency.

## Discussion

Studying teacher attendance/absenteeism gives educators a better understanding of one variable that appears to have some impact student achievement. There are many other variables that impact achievement, and those were not addressed in this study. However, those factors, such as socio-economic status, school culture, demographics, etc., can exacerbate student learning issues. Reviewing those variables would be a recommendation for broadening the outcomes of this particular study.

It is noteworthy and interesting that student attendance comparisons in this study, which proved to be significantly different in the comparison schools, were based on the lowest and highest teacher attendance schools. Specifically studying the effects of teacher attendance on student attendance rates warrants further inquiry.

**Table 7. Annual Teacher Attendance Rates Instructional Time Loss**

| Teacher Attendance Rate (%) | Instructional Hours Per School Year | Instructional Hours of Teacher Absence Per School Year |
|---|---|---|
| 100 | 450,000 | 0 |
| 99 | 445,500 | 4,500 |
| 98 | 441,000 | 9,000 |
| 97 | 436,500 | 13,500 |
| 96 | 432,000 | 18,000 |
| 95 | 427,500 | 22,500 |
| 94 | 423,000 | 27,000 |
| 93 | 418,500 | 31,500 |
| 92 | 414,000 | 36,000 |
| 91 | 409,500 | 40,500 |
| 90 | 405,000 | 45,000 |
| 89 | 400,500 | 49,500 |
| 88 | 396,000 | 54,000 |
| 87 | 391,500 | 58,500 |

Practical application to the findings can be made, using a similar method showing the affects of student absenteeism (Roby, 2004). Table 7 provides an example of instructional time loss from regular full-time teachers during a typical school year. The example is based on a school housing 500 students, and teachers instructing five hours per day for 180 school days.

Applying information provided in Table 7 to the actual schools used in this study, we can see the effects of teacher absenteeism. Teachers in the lowest ranked schools averaged 87.28 percent attendance rate. Teacher attendance in the highest ranked schools averaged 97.83 percent (Table 2). The difference of instructional hours per year between the comparison schools is noteworthy.

Educators cannot deny the importance of teacher attendance, and the potential affect of teacher absenteeism. For a school housing 500 students, with teacher attendance averaging 87 percent during a school year of 180 days, over 58,000 hours of instructional time loss is evident. Providing substitutes for the teachers is the norm, although many times they are not licensed in the subject area implicated. Substitute teachers, in most cases, have not prepared for the class sessions compared to regular teachers, and knowledge of content and teaching pedagogy may be an issue.

Further study on teacher attendance is indicated. Educators looking at variables affecting student achievement cannot overlook the ramifications of the teacher's function. Continuing studies should be considered to confirm or deny the affects of teacher attendance on student learning.

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